Convergence, Connection and Cooperation
The Construction of “Image Database of Chinese Museum Architecture”

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Nanjing museum
China Committee of Association and Museums Technology (CCAMT)
Museum is the product of civilization accumulation, and the architecture is the reflection of Times.

As the Secretariat Unit of China Committee for Architecture and Museums Techniques, Nanjing Museum organized manpower and financial resources to launch the database construction of Chinese Museums Architecture with the support of the Chinese Museums Association in 2011. The project focused on collecting the digital images and datas of the representative museums in China. Statistics by December, the project team had completed the data collection of 103 museums from 23 provinces of China covering two-thirds of Chinese territory.

The size of the data resource is 2.8T, including more than 60 thousand high definition digital pictures, 4 thousand minutes video materials and 2286 ring scene points which contain 54,864 pictures. The data resource recorded the development of China Museum during the past 10 years. It’s the most widely and largest Museum Architecture image database in China.

The purpose of the project is to strengthen the communication and cooperation between the Chinese museums, the architecture and the technology fields.

According to the statistics of Chinese Museums Association, there were 2,970 museums registered in China in 2008. The number rose to 4,692 at the end of 2015. In 2008, most museums in China are open for free, the number of audiences received by museums nationwide each year reached 500 million person-times stably within seven years, this shows that Chinese museums are undergoing a fast development. Almost every day there are new museums being constructed. For newly established museums, they are often endowed with multiple missions, such as landmark of a city, center of public cultural services, center of cultural and heritage protection and contemporary manifestation of traditional civilization etc. What the most concerned for them is how to position themselves successfully and how to plan and implement the construction. For completed museums, they are seeking how to better integrate the functions of museums with architectural design and space planning.

Therefore, an object record and information gathering concerning the actual museum construction in China will draw attentions from professionals in the field of museum, architecture, design and technology concerning the design and space use of museum architectures. The purpose of this CCAMT project is to share present successful experience and to explore potential application problems.

Relations between Chinese museum architectures and traditional culture

In 1905, Chinese people built their first public museum independently——Nantong Museum. The State Central Museum, which was the predecessor of Nanjing Museum (in the era of Republic of China) and the earliest State museum, was designed and built by Chinese people. The architect firstly ensures the space for exhibition hall and storerooms as required by modern
museums and then strives to give full consideration of size and details of architecture as shown in Chinese classical architectures. The Nanjing Museum fully highlights the features of Chinese civilization. Thereon, the design of Chinese museum architectures has been closely related to traditional culture.

China is an ancient civilization with 5,000 years of continuous history. It has vast land and massive nationalities. Different territories nurture different regional civilizations. Due to such diversity, each museum architecture differs from one another in respective objectives and backgrounds. They play their roles in construction of cultural landscape with different interpretations.

1) Ancient Chinese Architecture as Museum Houses

The Palace Museum (photo by Chui-Hu)

Nanjing Municipal Museum (photo by Zhen Chao)
In China, there are many museum architectures which directly inherited the ontology of Chinese ancient architectures. They are mostly palaces, temples or private parks, etc. from Ming or Qing Dynasty (14th Century A.D.- 19th Century A.D.) or even earlier in China. The architectures themselves are the best examples to study traditional Chinese culture and ancient architectural technique.

2) Application of Regional Cultural Elements
The Classical Gardens of Suzhou are a masterpiece of Chinese traditional gardens. These gardens were mostly built by the nobility, officials and rich businessmen. Their layouts and ideals were deeply affected by Chinese literature and painting arts. They integrated artistic creation into natural beauty.

The Suzhou Museum was designed by Ieoh Ming Pei, a Chinese American architect. The design integrates the styles of traditional architectures in Suzhou and demonstrates in every way the aesthetic and stylistic elements of Suzhou Gardens, such as ponds fully paved with pebbles in the courtyard, little curved and straight bridges, octagon pavilions, rubble rockeries and bamboo groves, etc. The museum architecture is different from traditional gardens in Suzhou but in line with the flavor and charm of Chinese artistic mountains and water. The new house of Suzhou Museum has become an architecture integrated by modern houses, ancient architecture and innovative landscape gardens.
The Ningbo Museum is the works of Wang Chu, the winner of “Pritzker Architecture Prize”. The architectural appearance is an abstract mountain. In the meantime, the architecture surrounded by water presents the features of south water region of China and the unique aesthetic relation in traditional Chinese culture among mountains, water and architectures.

The decorative exterior wall of the architecture consists of “tile block walls” and “bamboo texture template concrete”, because of the influences of the elements of local traditional residential architectures. “Tile blocks” was a common traditional architectural material in Zhejiang area in Ming and Qing Dynasty (14th-19th centuries). They were mainly black bricks, tiles and even pieces of water vats. Bamboos were the common plants in local area. The design not only embodies harmony between the natural environment and the texture, quality and color of the architecture, but also inherits the historic legacies of traditional culture of Ningbo.
(photo by Zhen Chao)

3) Echo with Traditional Civilization

(photo by Zhen Chao, Jinsha Relic Museum)
Jinsha relic is located south of China as a cultural relic of ancient Shu Kingdom in Shang and Zhou Period (2nd Century B.C.). Ancient Shu Kingdom is a key political, economic and cultural center of southwest China 3000 years ago. There were tons of ivory and spectacular gold ware and jade ware excavated from this relic.

The exhibition hall and the relic hall are the two major halls of Jinsha Relic Museum. One of them is round and the other is square, so to embody the ancient Chinese philosophy of “round heaven and square earth”. On the east of the Museum, it’s the most important archaeological excavation site of Jinsha relic. On this site, 90% historical relic is still buried beneath the earth. The relic hall was built upon this ground. It is a steel frame architecture supported by 15 steel pillars. Huge space provides ultimate protection of the archaeological excavation site. In the relic hall, there are wooden paths for tourists, who can get closer to the archaeological excavation site and see closely some of the unexcavated historical relic and witness the site protection provided by historical relic protection workers.

(photo by Zhen Chao, National Museum of Chinese Writing)
Oracle bone inscription is a kind of ancient character inscribed on tortoise shells or animal bones and boasts a history of over 3000 years. Collections in National Museum of Chinese Writing have recorded the process of development from oracle bone inscriptions to Chinese characters now. The architecture blends the elements of court style of China 3000 years ago. The ornaments on exterior elevation came from bronze ornaments in Shang Dynasty—ornaments of Tao Tie and Pan Chi, etc. Square at the front door of the museum takes the shape of “Character” in oracle bone inscriptions and ancient bronze inscriptions.

4) Combination with Modern Museum Functions

According to modern philosophy of museum development, museum does not just serve as a culture institution for collection, studies and education in traditional sense, but also provides a spiritual and cultural guide for a city. This philosophy has been adopted in the architectural design and planning of many new museums.
In 2013, Nanjing Museum expanded the original history gallery. The galleries were all designed based on the demands for collection, exhibition, service and education. “Not only a palace of cultural arts, but also a leisure facility for citizens” has become a general thinking of architectural space planning of the museum has become a general guideline in space layout planning. According to this guideline, the layout of Nanjing Museum was divided into six halls.

**Convergence of Resources**

In order to present these museum architectures to the public and to provide original materials for exchange and cooperation between the museum circle and architecture and high techniques circles, Nanjing Museum acted as the Chairman of CCAMT to officially rally human resources and funds for the construction of “Image Database of Chinese Museum Architecture” in November 2011. The main content of this project is to shoot digital images of architectural design and space usage of representative museums in all provinces in China.

Resource collection is carried out in four directions:
1. Overall image of each façade from the main architecture and local images from architectural texture and details, etc.
II. Exterior space of museum, including courtyard layout and responding relationship between architecture and ambient environment;

III. Exhibition space of museum, including permanent display and temporary exhibition space;

IV. Application space of museum, including some basic infrastructure space, transport linkage space and public service space;

To get the most comprehensive information within limited time, the project team adopts three different methods for shooting and recording, including—digital shooting, digital video and digital panorama. Wherein, the team uses highly portable HD SLR cameras to shoot digital photo and video and record in an objective shooting method as much as possible. Digital panorama is a 360-degree shooting of a base point by manual means. 24 photos will be taken for each based point and use program to joint them together to restore the space scene. Besides, the team will also collect information in relation to architectural design from the museum, including designer, amount of investment, architectural drawings and exhibition drawings, etc.

Digital panorama

At the initial of the project, the project team has worked out the detailed work rules for the procedures of collecting video resources, including video shooting rules, video technology specifications, equipments management rules and video registration rules.
As of December 2015, the project team has collected materials from 103 museums in 23 provinces of China.

Current capacity of digital image resources collected is 2.8T, including over 60,000 HD digital photos, over 4000 minutes of HD video materials and 2286 digital environmental points (comprising of 54864 photos).
As of December 2015, the project team has collected materials from 103 museums in 23 provinces of China (covering 2/3 of Chinese territory). Current capacity of digital image resources collected is 2.8T, including over 60,000 HD digital photos, over 4000 minutes of HD video materials and 2286 digital environmental points (comprised of 54864 photos).

The images of architectural space have truthfully recorded the development of Chinese museums in the recent decade. It is also an image database of museum architecture with the widest range and largest total resources in current China.

Promotion of Cooperation

Convergence of digital resources is only a medium of information for mutual communication and exchange. During collection of project resources, the CCAMT has established rapport directly with staff of 100 museums in China. CCAMT is trying to promote mutual communication through such connections.

For instance, in 2014, CCAMT invited Mr. Shigeru Ban, a Pritzker winner to an architectural forum in Xiamen. Many architects and curators of Chinese museums had the chance to sit together for the discussion of issues on museum construction.

If there are any chances, I hope that present specialists can come to China for communication and that ICAMT may develop further cooperation with CCAMT.

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